

ABSTRACT OF THE DISCLOSURE

A coaxial starter motor assembly that includes a housing. An electrical motor is provided in the housing that has a rotatable armature shaft that is linked with a drive shaft. A pinion assembly is provided that is engageable at one end with the drive shaft and includes a pinion at the other end engageable with a flywheel of an engine. A solenoid assembly is provided for selectively energizing the electrical motor. The solenoid assembly is coaxial with the drive shaft. The solenoid assembly includes a plunger having a bore. The plunger is engageable with the pinion assembly to move the pinion assembly including the pinion into engagement with the flywheel. The plunger is also engageable with a moveable contact to move the moveable contact to electrically connect with a pair of fixed contacts. A return spring is provided that is positioned at least in part within the bore of the plunger of the solenoid assembly for moving the pinion assembly including the pinion away from engagement with the flywheel. The return spring is spaced from the pinion assembly. Energization of the solenoid assembly moves the plunger to move the pinion assembly to engage the pinion with the flywheel. Upon deenergization of the solenoid assembly, the plunger is capable of moving independently of the pinion assembly to thereby break the electrical connection between the moveable contact and the fixed contacts before the return spring moves the pinion assembly to move the pinion away from engagement with the flywheel.

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